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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARK DURON and RAJ BRIDGELALL

Appeal 2009-003263
Application 10/690,390
Technology Center 2600

Decided: November 24, 2009

Before, ROBERT E. NAPPI, CARLA M. KRIVAK, and
THOMAS S. HAHN, *Administrative Patent Judges*.

NAPPI, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the final rejection of claims 1-17 and 19.¹ We have jurisdiction under 35 U.S.C. § 6(b).

We affirm the Examiner's rejections of these claims.

INVENTION

The invention is directed to a system and method of echo cancellation by using the reflection signal to isolate in-phase and quadrature error signals. The error signals are then modulated to create a feedback signal that is combined with the reflection signal to cancel the echo signals. *See Spec:* 1-3. Claim 10 is representative of the invention and reproduced below:

10. A method, comprising the steps of:
 - demodulating a reflection signal into an in-phase signal and a quadrature signal;
 - filtering the in-phase signal to isolate an in-phase error signal;
 - filtering the quadrature signal to isolate a quadrature error signal;
 - modulating the in-phase error signal and the quadrature error signal to create a feedback signal; and
 - combining the reflection signal and the feedback signal to cancel at least a portion of radio frequency echo signals in the reflection signal.

¹ Claim 18 has been indicated as containing allowable subject matter in the Final Office Action, mailed May 2, 2007.

REFERENCES

Levy	US 4,355,214	Oct. 19, 1982
Helms	US 6,236,315 B1	May 22, 2001 (filed Oct. 19, 1999)

REJECTIONS AT ISSUE

Claims 1-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Helms in view of Levy. Ans. 5-6.

Claims 10-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Levy. Ans. 3-4.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Levy. Ans. 7.

ISSUE

Rejection of claims 10-17 under 35 U.S.C. § 102(b) as being anticipated by Levy

Appellants argue on pages 4-5 of the Appeal Brief and pages 2-4 of the Reply Brief that the Examiner's rejection of independent claim 10 is in error. Appellants argue that Levy does not teach "combining a feedback signal with a reflection signal, [sic] or demodulating such a signal into in-phase and quadrature signals" since Levy does not teach a reflection signal. App. Br. 4. Appellants present similar arguments directed to independent claim 14.

Thus, Appellants' contentions present the issue: Have Appellants shown that the Examiner erred in finding that Levy discloses a reflection signal?²

Rejection of claim 19 under 35 U.S.C. § 103(a) as being unpatentable over Levy

Appellants argue on pages 5-6 of the Appeal Brief and page 5 of the Reply Brief that the Examiner's rejection of claims 19 is in error. Claim 19 is dependent upon claim 14, and, therefore, contains similar limitations to claim 14. Appellants present the same arguments discussed above with respect to claims 10 and 14. App. Br. 5-6; Reply Br. 5. Thus, Appellants' arguments with respect to the Examiner's rejection of claim 19 present us with the same issue as claims 10 and 14.

Rejection of claims 1-9 under 35 U.S.C. § 103(a) as being unpatentable over Helms in view of Levy

Appellants argue on pages 5-6 of the Appeal Brief and page 5 of the Reply Brief that the Examiner's rejection of claims 1-9 is in error. We select independent claim 1 as representative of the group comprising claims 1-9 since Appellants did not separately argue these claims with particularity. See 37 C.F.R. § 41.37(c)(1)(vii). Claim 1 contains similar limitations to claims 10 and 14. Appellants present the same arguments discussed above with respect to claims 10 and 14. App. Br. 5-6; Reply Br. 5. Thus, Appellants' arguments with respect to the Examiner's rejection of claim 1 present us with the same issue as claims 10 and 14.

² Appellants additionally argue that the dependent claims are allowable since not every limitation of claims 10 and 14 is taught by Levy. App. Br. 5; Reply Br. 4. We do not reach the additional issue since whether Levy discloses a reflection signal is dispositive of the case.

FINDINGS OF FACT

Levy

1. Levy discloses a data transmission terminal that incorporates an echo canceller. Col. 10, ll. 28-30 and Fig. 3.
2. The terminal comprises a data receiver 40, an echo canceller 30, a transmitter 20, and a hybrid coupler 41. Col. 10, ll. 30-31 and Fig. 3.
3. The hybrid coupler 41 has an input/output terminal that is connected to a transmission channel 43 and an output terminal where a received signal runs through a passband filter 45 and a subtracting circuit 34. In the subtracting circuit, the signal is combined with a feedback signal from the echo canceller 30, before connecting to the data receiver 40. Col. 11, ll. 13-19 and Fig. 3.
4. In addition, the received signal output of the subtracting circuit 34 is input to an analogue-digital converter (ADC) 35. The output of the ADC 35 is input to a quadrature phase splitter 36 and then through a digital demodulator 37 to produce an in-phase signal and a quadrature signal. Col. 11, ll. 39-59 and Fig. 3.

PRINCIPLES OF LAW

Office personnel must rely on Appellant's disclosure to properly determine the meaning of the terms used in the claims. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995) (en banc). "[I]nterpreting what is *meant* by a word *in* a claim 'is not to be confused with adding an extraneous limitation appearing in the specification, which is

improper.” *In re Cruciferous Sprout Litigation*, 301 F.3d 1343, 1348 (Fed. Cir. 2002) (internal quotation marks and citations omitted; emphasis in original).

ANALYSIS

Rejection of claims 10-17 under 35 U.S.C. § 102(b) as being anticipated by Levy

Appellants’ arguments have not persuaded us of error in the Examiner’s rejection of claim 10. Claim 10 recites “demodulating a reflection signal into an in-phase signal and a quadrature signal...and combining the reflection signal and the feedback signal to cancel at least a portion of radio frequency echo signals in the reflection signal.” Appellants argue that the signal supplied to the Levy quadrature phase splitter via the ADC and subtracting circuit is not a reflection signal. App. Br. 4. Appellants argue that Levy states “reflection signals” are signals created by impedance mismatches at various points along a transmission channel from indirect leakage producing delayed echoes. Reply Br. 3. Thus, the reflection signals in Levy are “unwanted inevitabilities” due to the signal being transmitted along the transmission channel. Therefore, Appellants assert, the reflection/received signals of Levy are related to the echo signals and not the reflection signals of the claimed invention. Reply Br. 3.

However, Appellants’ Specification indicates that the received signal contains the RF reflection plus an error component. Spec. 5:11-15. Additionally, Appellants’ Specification indicates that an echo is considered either noise or an error. Spec. 6:5-11. Thus, the scope of claim 10’s “reflection signal” can include a received signal plus an error component. Independent claim 14 includes limitations that recite similar features.

Levy discloses a signal that is reflected back on a transmission channel 43. FF 3. The Examiner finds that this signal corresponds to the claimed reflection signal. Ans. 8. Appellants argue that once Levy's reflection signal passes through the bandpass filter 45 it would no longer be a reflection signal because the reflection signal would be filtered out. Reply Br. 4. As a result, the input to the quadrature phase splitter 36 would not be the reflection signal, but rather a signal based on the reflection signal. Reply Br. 4. However, Appellants have not provided sufficient evidence to support this assertion. In addition, Appellants' Specification also sends the reflection signal through a band-pass filter 145 before it is demodulated in quadrature. Spec. 5:22-32. Therefore, just as Appellants' filtered reflection signal is still a reflection signal, Levy's filtered reflection signal is also still a reflection signal. Accordingly, for the reasons stated above, we sustain the Examiner's rejection of claims 10-17.

*Rejection of claim 19 under 35 U.S.C. § 103(a) as being unpatentable over
Levy*

Appellants' arguments have not persuaded us of error in the Examiner's rejection of claim 19. Claim 19 contains similar limitations discussed *supra* with respect to claims 10 and 14. Appellants' arguments present the same issue discussed with respect to claims 10 and 14. App. Br. 5-6; Reply Br. 5. Therefore, we sustain the Examiner's rejection of claim 19 for the reasons discussed *supra* with respect to claims 10 and 14

*Rejection of claims 1-9 under 35 U.S.C. § 103(a) as being unpatentable over
Helms in view of Levy*

Appellants' arguments have not persuaded us of error in the Examiner's rejection of claim 1. Independent claim 1 contains similar limitations discussed *supra* with respect to claims 10 and 14. Appellants' arguments present the same issue discussed with respect to claims 10 and 14. App. Br. 5-6; Reply Br. 5. Therefore, we sustain the Examiner's rejection of claim 1 and claims 2-9, that have been grouped with claim 1, for the reasons discussed *supra* with respect to claims 10 and 14.

CONCLUSION

Appellants have not shown that the Examiner erred in finding that Levy discloses a reflection signal.

SUMMARY

The Examiner's decision to reject claims 1-17 and 19 is affirmed.
No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136 (a)(1)(iv).

Appeal 2009-003263
Application 10/690,390

AFFIRMED

ELD

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